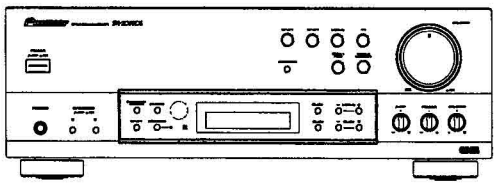
Service Manual

Pioneer



ORDER NUMBER: XRV1003

STEREO RECEIVER

SX-209RDS

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODELS AND TYPES.

Type	Power Requirement	Remerks
HYXK	AC220-230V	
HVXK	AC230V	

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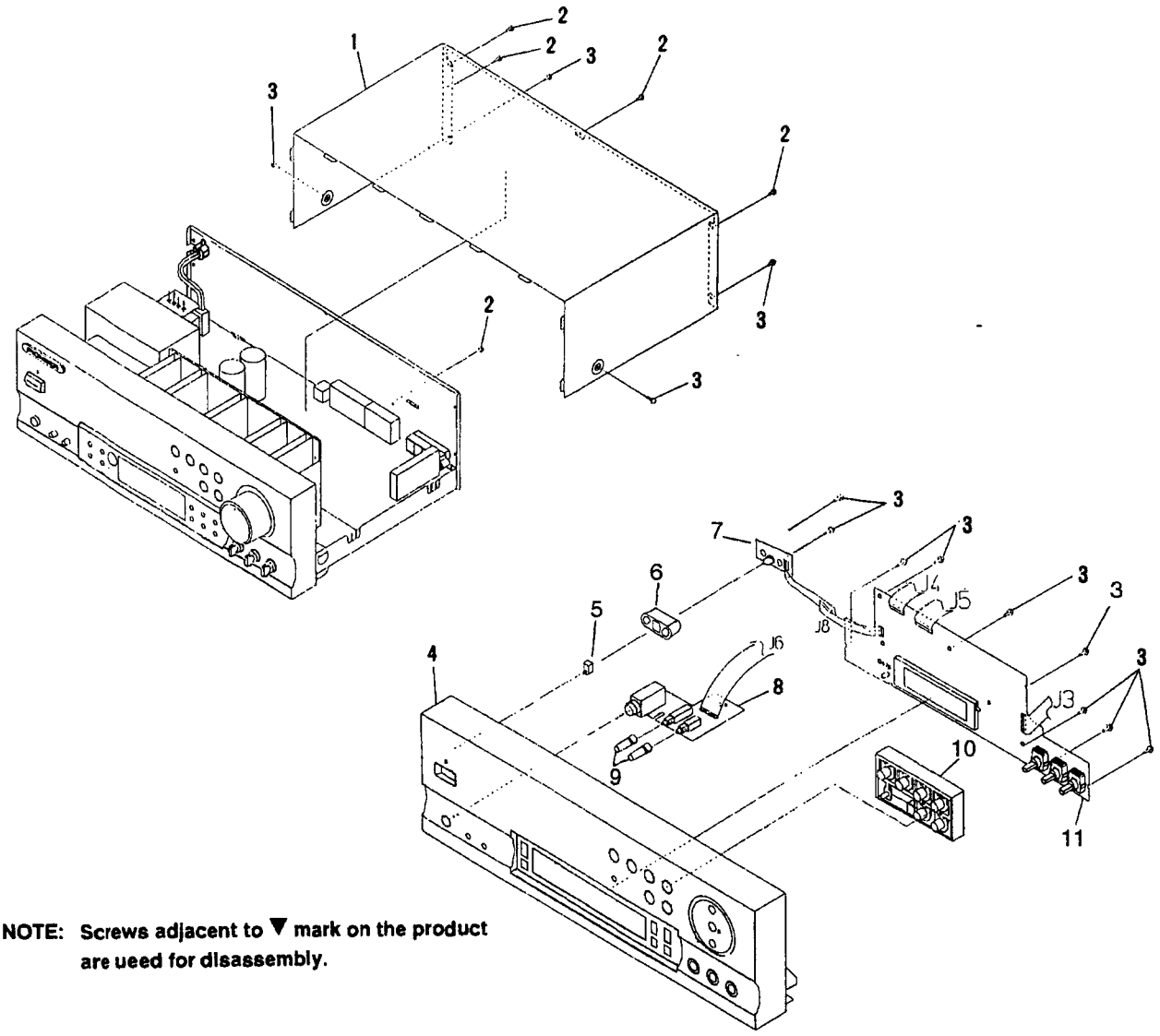
NOVEMBER 1999 -

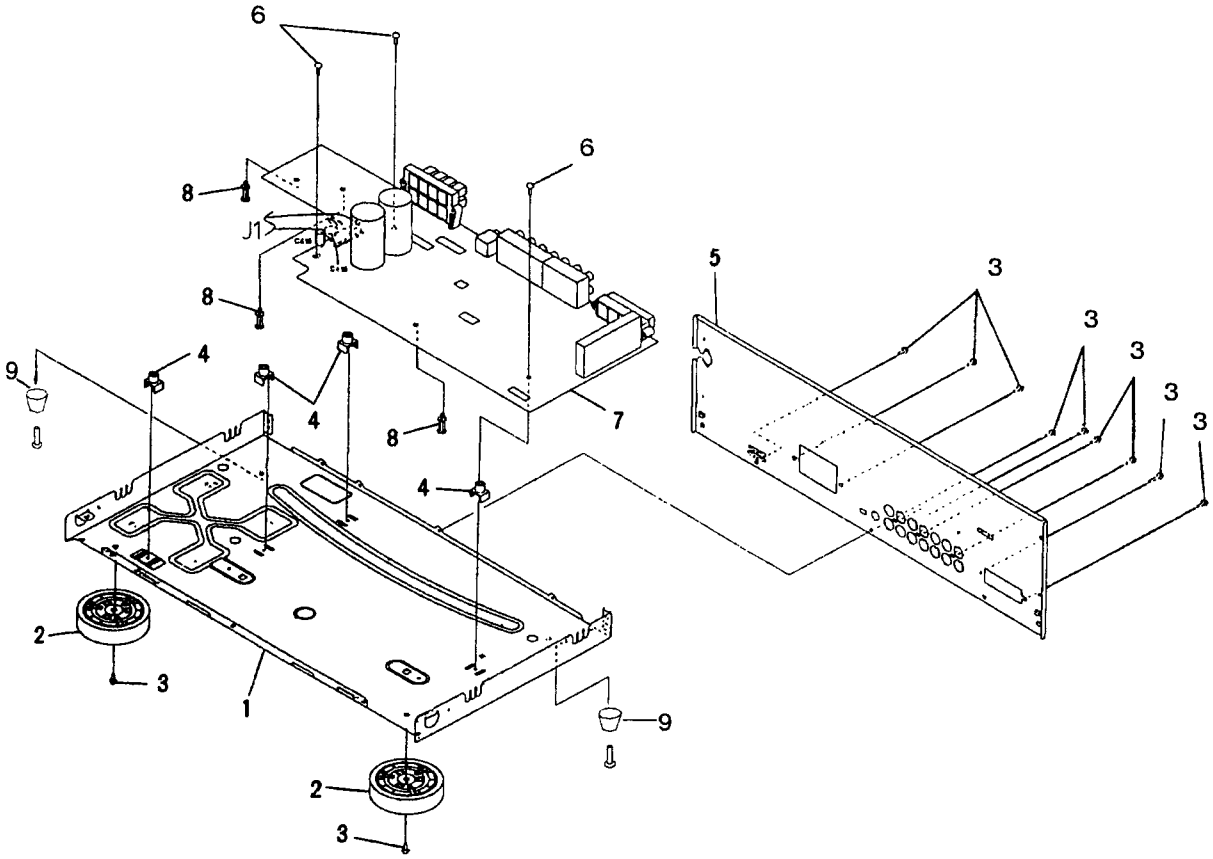
1.2 EXPLODED VIEWS (1/3)
PARTS FOR SX-209ROS/HYXK AND SX-209ROS/HVXK

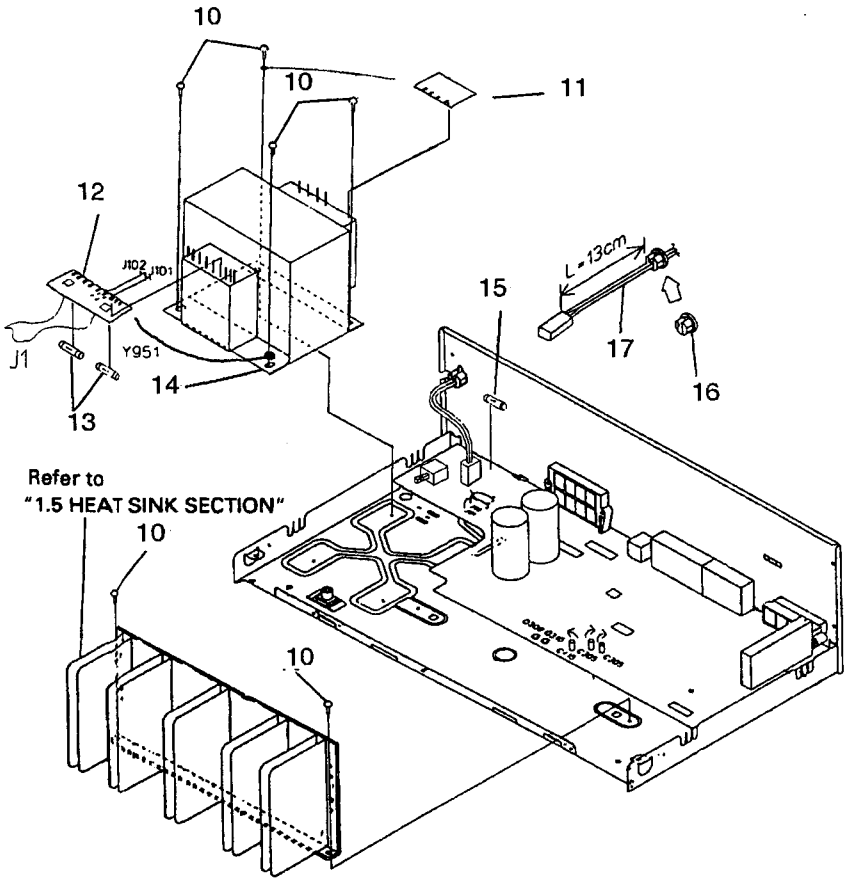
Mark	No.	Description	Parts No.
	1	Bonnet	XNE1003
	2	Screw	BCZ30P080FZK
	3	Screw	BBZ30P080FZK
	4	Front panel	XNW1006
	5	LED lens	PNW2019
	6	LED lens holder	XMR1004
NSP	7	LED assy	XWZ1005
NSP	8	SP SW Assy	XWZ1011
	9	Push button	AAD7283
	10	Function button	XAC1004
	11	Front assy	XWZ1006

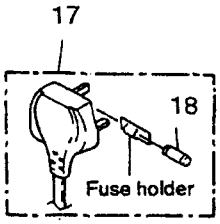


NOTE: Screws adjacent to ▼ mark on the product are ueed for disassembly.

EXPLODED VIEWS (2/3)





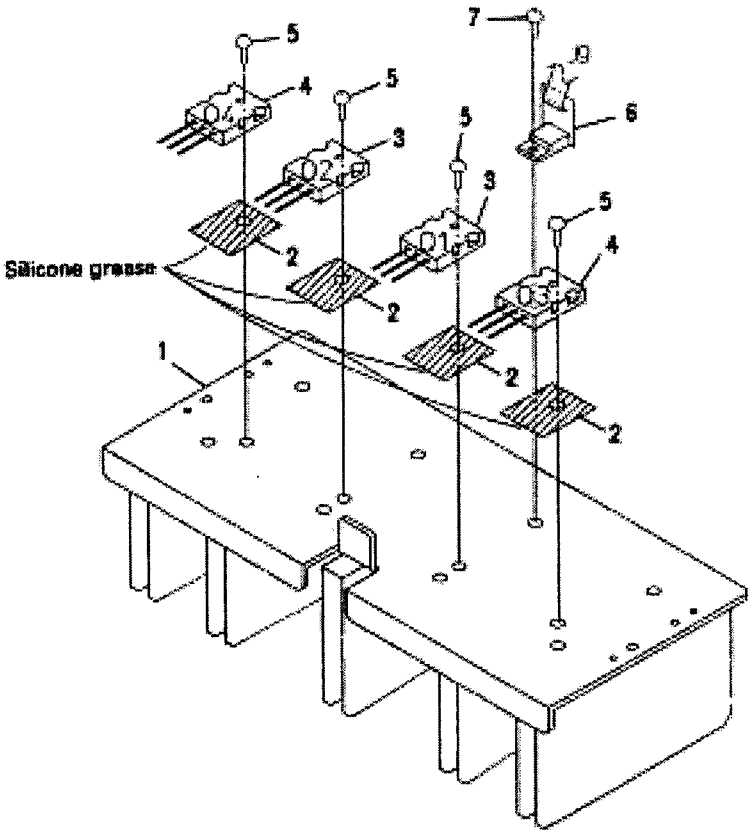


HVXK type only

1.5 HEAT SINK SECTION

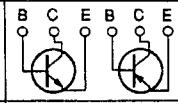
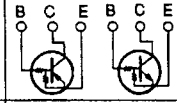
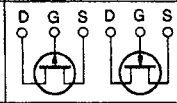
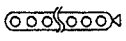
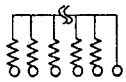
PARTS FOR SX-209ROS/HYXK AND SX-209ROS/HVXK

Mark	No.	Description	Parts No.
NSP	1	Heatsink	ANH1476
	2	Mica wafer	AEE7010
⚠	3	Transistor (Q1,Q2)	2SC5196(P)
⚠	4	Transistor (Q3,Q4)	2SA1939(P)
	5	Screw	ABA1037
NSP	6	REG ASSY	XWZ1008
	7	Screw	BBZ30P080FZK



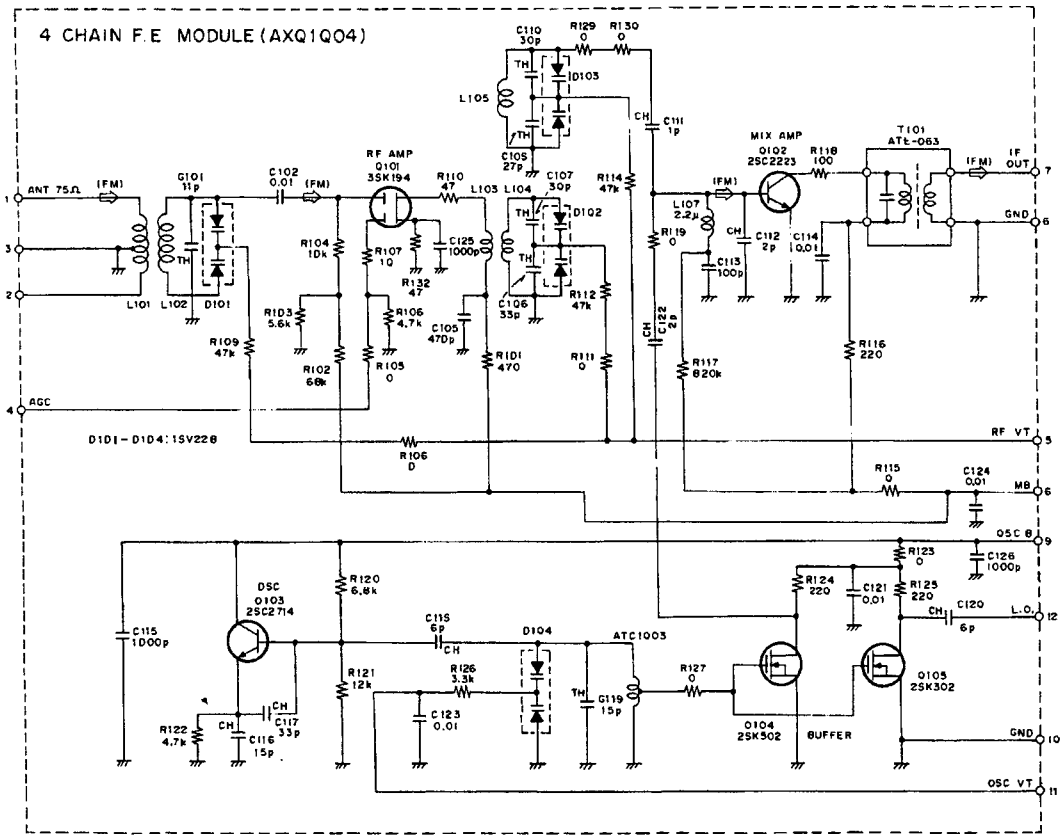
NOTE FOR PCB DIAGRAMS:

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3- terminal regulator

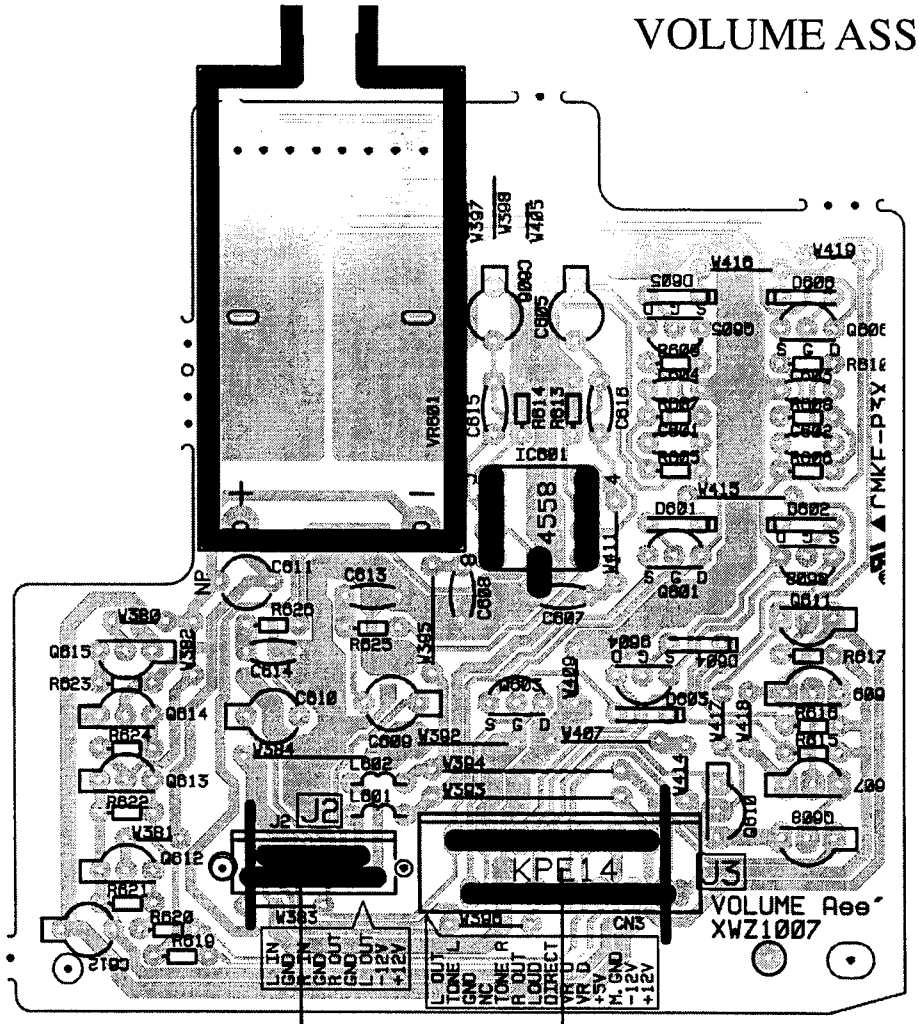
- The parts mounted on this PCB include all necessary parts for several destinations. For further information for respective destinations, be sure to check with the schematic diagram.

2.2 CHAIN F.E. MOD-



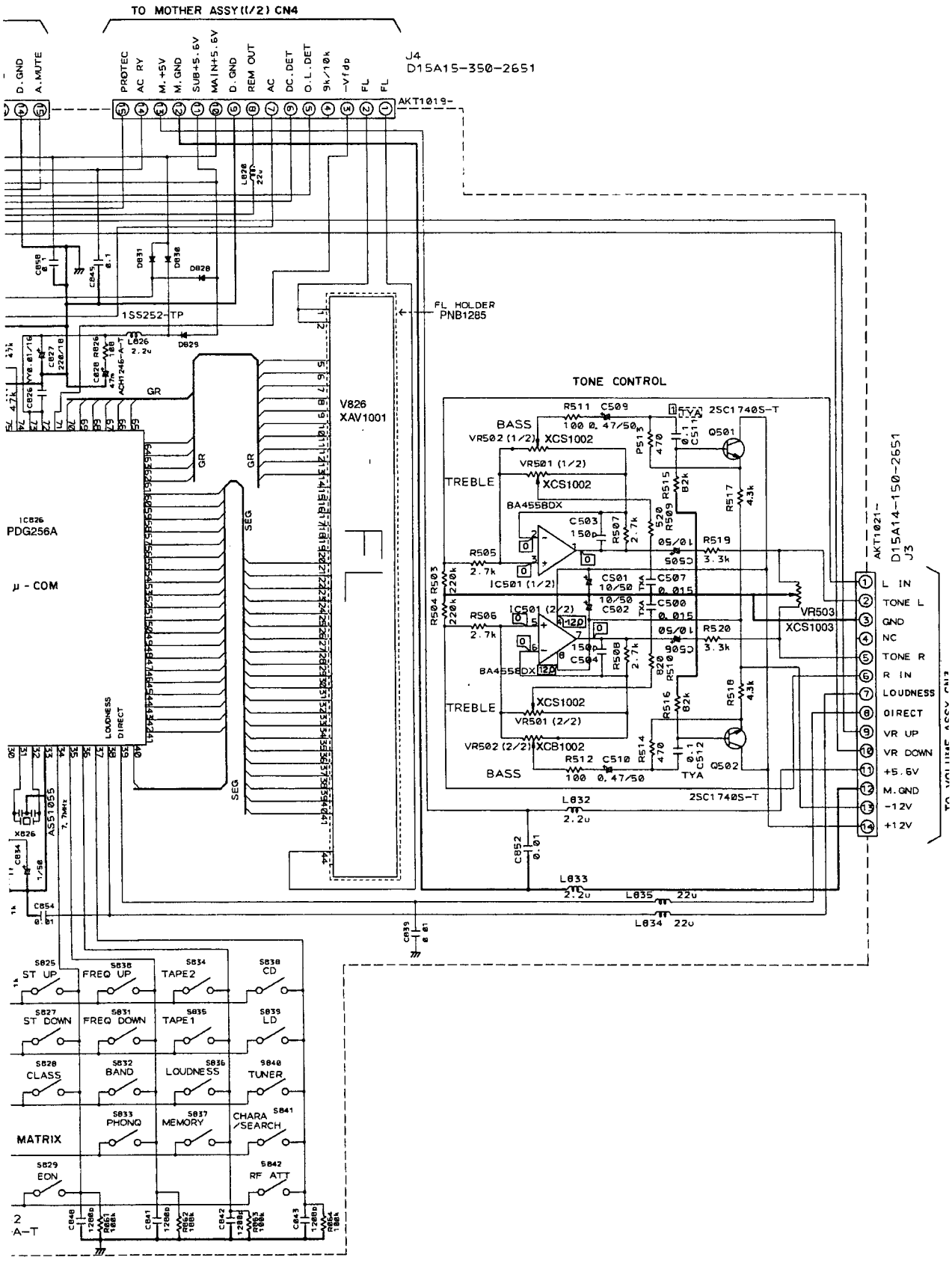
SIGNAL ROUTE
(FM)⇨ : FM SIGNAL ROUTE

VOLUME ASSY



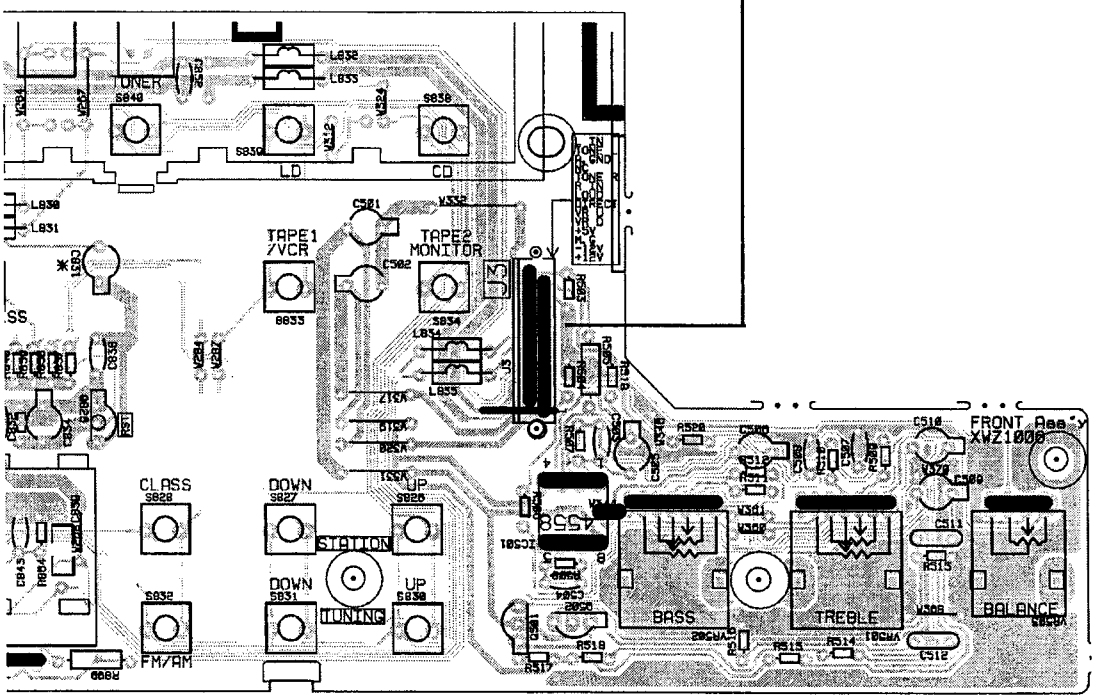
TO MOTHER ASSY CN2

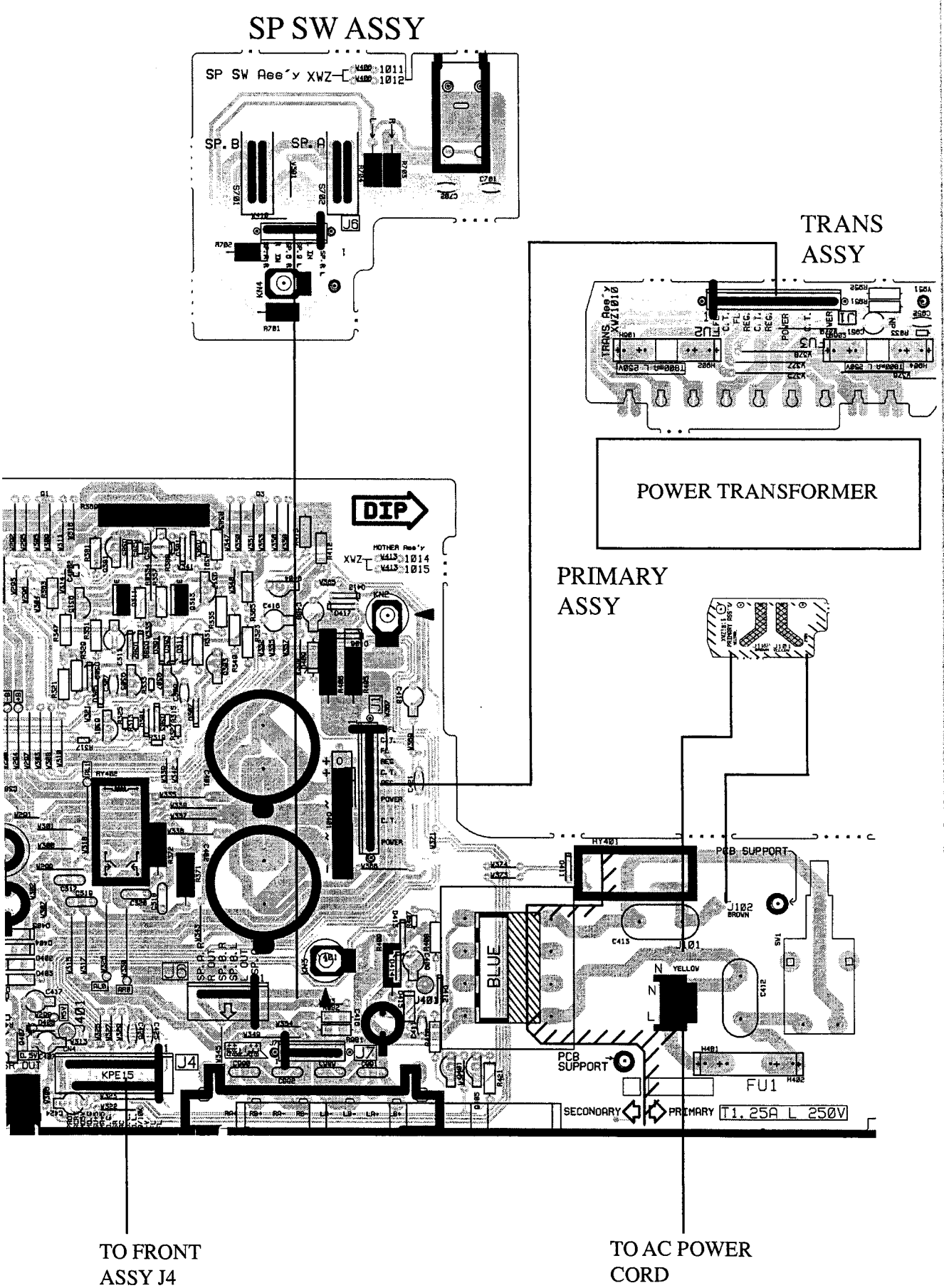
TO FRONT ASSY J3

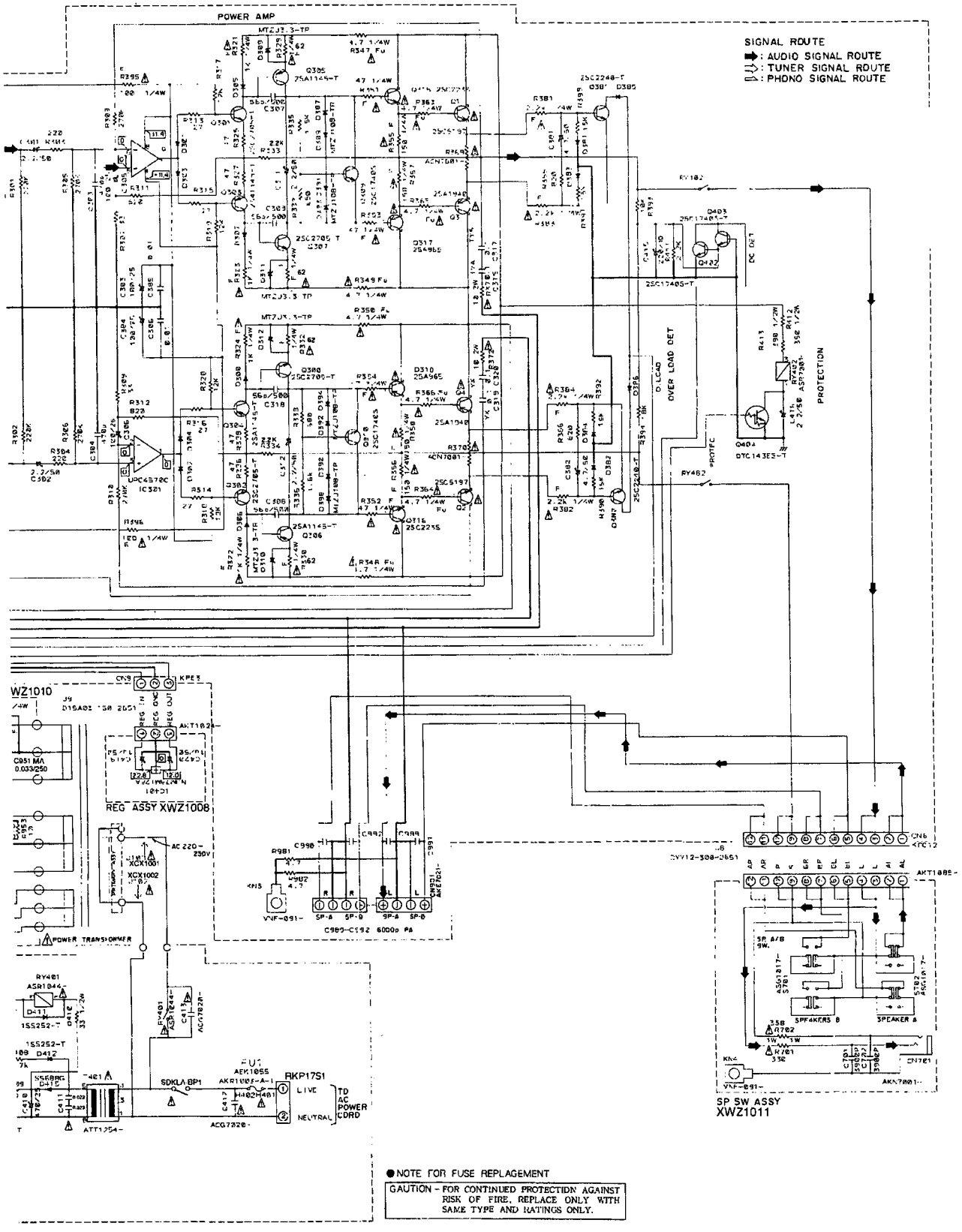

TO MOTHER ASSY(1/2) CN4
J4
D15A15-350-2651
AKT1019-
D.GND
A.MUTE
PROTEC
AC RY
M.+5V
M.GND
SUB+5.6V
MAIN+5.6V
D.GND
REM OUT
AC
DC.DET
O.L.DET
9k/10k
-Vfd
FL
FL
1SS252-TP
FL HOLDER
PNB1285
V826
XAV1001
GR
SEG
IC826
PDG256A
μ-COM
TONE CONTROL
BASS
TREBLE
XCS1002
XCB1002
BA4558DX
IC501 (1/2)
IC501 (2/2)
2SC1740S-T
Q501
Q502
VR501 (1/2)
VR502 (1/2)
VR501 (2/2)
VR502 (2/2)
VR503
XCS1003
AKT1021-
D15A14-150-2651
J3
L IN
TONE L
GND
NC
TONE R
R IN
LOUDNESS
DIRECT
VR UP
VR DOWN
+5.6V
M.GND
-12V
+12V
TO VOLUME ASSY CN13
X826
AS51055
7.7MHz
ST UP
FREQ UP
TAPE2
CD
ST DOWN
FREQ DOWN
TAPE1
LD
CLASS
BAND
LOUDNESS
TUNER
MATRIX
PHONO
MEMORY
CHARA /SEARCH
EON
RF ATT

FRONT ASSY

TO VOLUME
ASSY CN3

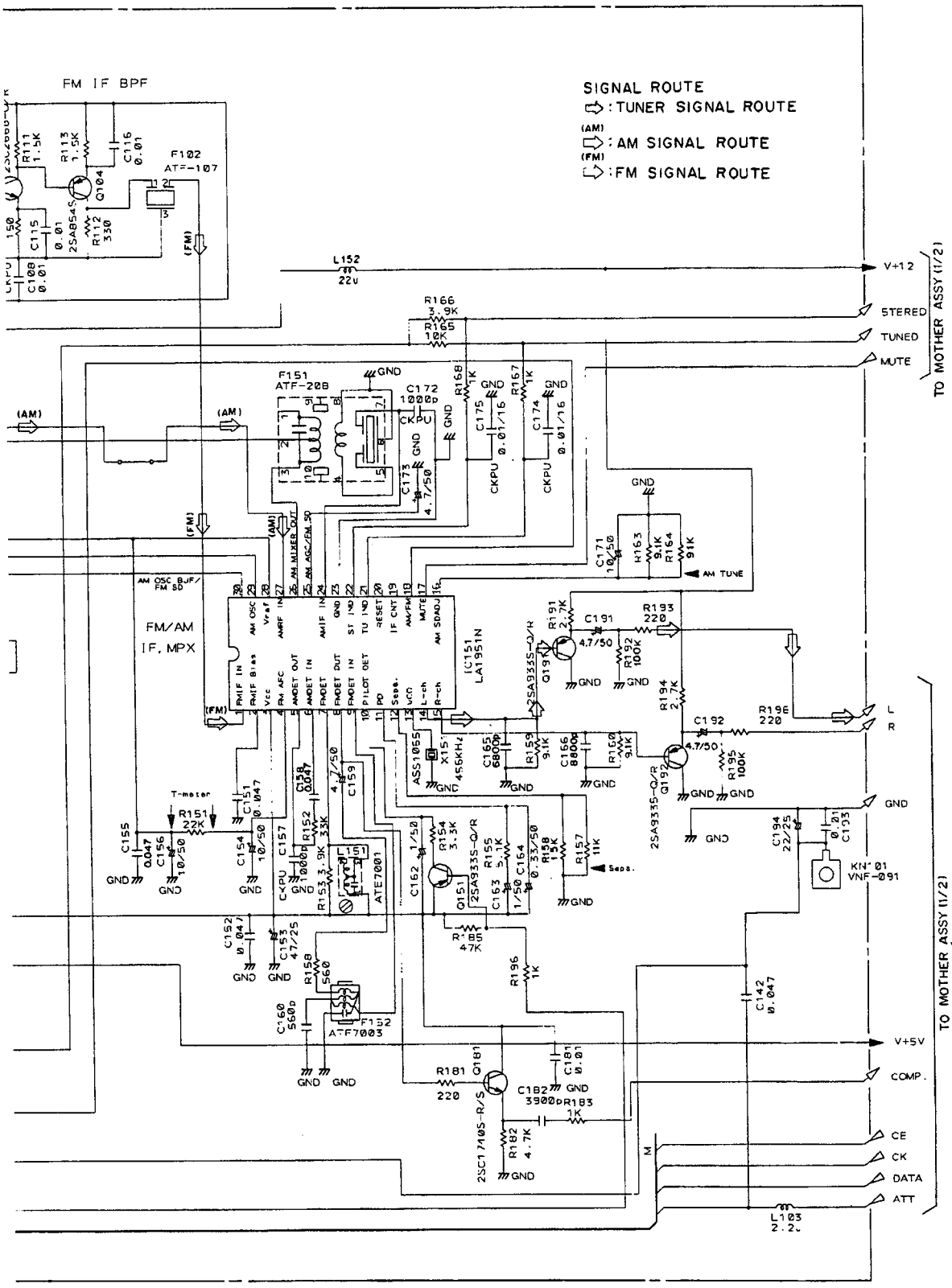



SP SW ASSY
SP SW Aee'y XWZ
SP. B
SP. A
TRANS ASSY
POWER TRANSFORMER
PRIMARY ASSY
DIP
MOTHER Aee'y XWZ
PCB SUPPORT
BLUE
YELLOW
BROWN
KPE15
FU1
T1.25A L 250V
SECONDARY
PRIMARY
TO FRONT ASSY J4
TO AC POWER CORD



● NOTE FOR FUSE REPLACEMENT

CAUTION - FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE AND RATINGS ONLY.


FM IF BPF
SIGNAL ROUTE
: TUNER SIGNAL ROUTE
(AM) : AM SIGNAL ROUTE
(FM) : FM SIGNAL ROUTE
F102 ATF-107
F151 ATF-20B
F152 ATF7003
IC151 LA1951N
FM/AM IF, MPX
AM OSC BUF/ FM SD
AM TUNE
T-meter
Sens.
V+12
STEREO
TUNED
MUTE
V+5V
COMP.
CE
CK
DATA
ATT
L
R
GND
TO MOTHER ASSY (1/2)
TO MOTHER ASSY (1/2)

MOTHER ASSY

Part	Deecriptien	Type	Ref:-									
SEMICONDUCTORS												
BA4558DX	OP AMP IC	IC	203									
LA1851N	AM/FM IC	IC	151									
LM7001J	PLL IC	IC	131									
TC9164	E-SW IC	IC	202									
UPC4570C	OP AMP IC	IC	201	301								
2SA1145-0	TRANSISTOR	Q	303	304	305	306						
2SA1529	TRANSISTOR	Q	102									
2SA854S(QR)	TRANSISTOR	Q	104									
2SA933S(QR)	TRANSISTOR	Q	151	191	192							
2SA965-O	TRANSISTOR	Q	317	318	406							
2SC1740SLN(RS)	TRANSISTOR	Q	132									
2SC1740S(RS)	TRANSISTOR	Q	101	181	309	310	402	403	405			
2SC2235-Q	TRANSISTQR	Q	315	316	407							
2SC2240(GRBL)	TRANSISTOR	Q	381	382								
2SC2668(RQ)	TRANSISTOR	O	103									
2SC2705-0	TRANSISTOR	Q	301	302	307	308						
2SC2878(AB)	TRANSISTOR	Q	1301	1302								
2SK246-Y	TRANSISTOR	O	131									
DTC143ES	TRANSISTOR	Q	401	404								
ISS254	DIODE	D	301	302	303	304	305	306	307	308	381	382
ISS254	DIODE	D	383	364	365	366	389	390	391	392	411	412
ISV156	DIODE	D	101									
MTZJ10B	DIODE	D	387	366	393	394						
MTZJ12C	DIODE	D	407									
MTZJ3.3	DIODE	D	309	310	311	312						
MTZJ4.7	DIODE	D	413									
MTZJ5.1A	DIODE	D	409									
MTZJ5.6A	DIODE	D	414	416								
MTZJ6.2B	DIODE	D	406									
MTZJ8.2A	DIODE	D	408	417	416							
S5688G	DIODE (TPA3)	D	402	403	404	405	415					
D3SBA20(B)	DIODE BRIDGE	D	401									
COILS AND FILTERS												
ASS1042	CRYSTAL RESONATOR	X	131									
ASS1066	CRYSTAL RESONATOR	X	151									
LAU220J	INDUCTOR	L	152									
LAU221J	INDUCTOR	L	201	202	203	204						
LAU2R2J	INDUCTQR	L	101	103	131							
LAU330J	INDUCTOR	L	102									
ATE7001	COIL	L	151									
ATF-107	CERAMIC FILTER	F	102									
ATF-119	CERAMIC FILTER	F	101									
ATF-208	CERAMIC FILTER	F	151									
ATF7003	ANTI BIRDIE FILTER	F	152									
SWITCHES AND RELAYS												
ASR1044	RELAY	RY	401									
ASR7001	RELAY	RY	402									
CAPACITORS												
CCCCH820J50	CERAMIC CAPACITOR	C	246	247								
CCCSL101J50	CERAMIC CAPACITOR	C	201	202								
CCCSL151J50	CERAMIC CAPACITOR	C	203	204								
CCCSL220J50	CERAMIC CAPACITOR	C	114									
CCCSL221J50	CERAMIC CAPACITOR	C	233	234	237	238	239	240	241	242	243	244
CCCSL560K52H	CERAMIC CAPACITOR	C	307	308	309	310						
CEAT1R0M50	ELECTRQLYTIC CAPACITOR	C	162	163	419	420						
CEAT100M50	ELECTROLYTIC CAPACITOR	C	154	156	171	231	232					
CEAT101M10	ELECTROLYTIC CAPACITOR	C	407	408	409	417	424					
CEAT101M25	ELECTROLYTIC CAPACITOR	C	207	206	305	306	383	384	403	427		
CEAT101M35	ELECTROLYTIC CAPACITOR	C	418									
CEAT220M25	ELECTROLYTIC CAPACITOR	C	194	612								
CEAT221M10	ELECTROLYTIC CAPACITOR	C	415									
CEAT2R2M50	ELECTRQLYTIC CAPACITOR	C	217	216	221	222	301	302	311	312	416	
CEAT4R7M50	ELECTROLYTIC CAPACITOR	C	159	173	191	192	213	214	225	226	381	382
CEATR33M50	ELECTROLYTIC CAPACITOR	C	164									
CEAT470M25	ELECTROLYTIC CAPACITOR	C	133	135	153	405						
CFTXA224J50	AUDIO FILM CAPACITOR	C	136									

FRONT ASSY

Part	Description	Type	Ref:-								
SEMICONDUCTORS											
BA4558DX	OP AMP IC	IC	501								
PDG256A	MICRON IC	IC	826								
SAA6579	RDS IC	IC	801								
2SC1740S(RS)	TRANSISTOR	Q	501	502	803						
DTA124ES	TRANSISTOR	Q	827	833							
DTA143ES	TRANSISTOR	Q	828	829							
DTC124ES	TRANSISTOR	Q	831								
DTC143ES	TRANSISTOR	Q	802	826	830						
AEL1065	LED	D	826								
BR3371XJ30A	LED	D	876								
ISS254	DIODE	D	827	828	829	830	831	836	837	838	839
COILS AND FILTERS											
ASS1055	CRYSTAL RESONATOR	X	826								
ASS7004	CRYSTAL RESONATOR	X	801								
LAU1R0J	INDUCTOR	L	827								
LAU220J	INDUCTOR	L	828	830	831	834	835				
LAU2R2J	INDUCTOR	L	826	829	832	833					
SWITCHES AND RELAYS											
RSG1030	TACTILE SWITCH	S	826	827	828	829	830	831	832	833	834	835
RSG1030	TACTILE SWITCH	S	836	837	838	839	840	841	842	876		
CAPACITORS											
ACH1246	ELECTROLYTIC CAPACITOR	C	828								
CCCCH470J50	CERAMIC CAPACITOR	C	803								
CCCCH820J50	CERAMIC CAPACITOR	C	804								
CEAT1R0M50	ELECTROLYTIC CAPACITOR	C	807	834							
CEAT100M50	ELECTROLYTIC CAPACITOR	C	501	502	505	506					
CEAT101M10	ELECTROLYTIC CAPACITOR	C	802	809							
CEAT221M10	ELECTROLYTIC CAPACITOR	C		827							
CEATR47M50	ELECTROLYTIC CAPACITOR	C	509	510							
CFTXA153J50	AUDIO FILM CAPACITOR	C	507	508							
CFTYA104J50	AUDIO FILM CAPACITOR	C	511	512							
CGCYX104M16	ELECTROLYTIC CAPACITOR	C	849	850							
CGCYX473M16	ELECTROLYTIC CAPACITOR	C	836	837	838						
XCS1004	ELECTROLYTIC CAPACITOR	C	840	841	842	843					
CKCYB331K50	ELECTROLYTIC CAPACITOR	C	835								
CKCYB561K50	ELECTROLYTIC CAPACITOR	C	805								
CCCSL151J50	CERAMIC CAPACITOR	C	503	504							
CKCYF473Z50	ELECTROLYTIC CAPACITOR	C	829	847							
CQMA242J50	ELECTROLYTIC CAPACITOR	C	833								
CKPUYF103Z25	ELECTROLYTIC CAPACITOR	C	839	846							
CKPUYY103M16	ELECTROLYTIC CAPACITOR	C	801	808	826	830	832	833			
CGCYX103M16	CERAMIC CAPACITOR	C	851	852	853	854					
RESISTORS											
XCS1002	POTENTIOMETER	VR	501	502							
XCS1003	PQTENTIOMETER	VR	503								
RD1/4PU***J	All other resistors										
OTHERS											
D15A03-150-2651	FLAT CABLE	J	8								
51063-0305	CABLE HOLDER	J	8								
51063-1405	CABLE HOLDER	J	3								
51063-1505	CABLE HOLDER	J	4	5							
D15A14-150-2651	FLAT CABLE	J	3								
D15A15-350-2651	FLAT CABLE	J	4	5							
TSOP2840YA	REMOTE SENSOR	M	801								
XAV1001	FL TUBE										

SP SW ASSY

Part	Description	Type	Ref:-	
SWITCHES AND RELAYS				
ASG1017	PUSH SWITCH	S	701	702
CAPACITORS				
CKCYB392K50-T	ELECTROLYTIC CAPACITOR	C	701	702
RESISTORS				
RS1LMF331J	RESISTOR	R	701	702
OTHERS				
DYY06-300-2651	FLAT CABLE	J	5	
AKN7001	HEADPHONE SOCKET	CN	701	

4. ADJUSTMENT

ADJUSTMENT OF MW TUNER SECTION

- Set the FM/AM selector to AM (MW) BAND.
- Connect the wiring as shown in Fig. 1–1.

Step No.	Adjustment Title	AM SG (400Hz, 30% Mod.)		Reception Frequency Display	Adjustment Location	Specifications
		Frequency (kHz)	Level (dBμV/m)			
1	TUNED IND. Lighting Level Check	999	Less than 65	999 kHz	——	Less than 65 dBμV/m. In case out of standard, cut the R164.

ADJUSTMENT OF FM TUNER SECTION

- Set the FM/AM selector to FM BAND.
- Connect the wiring as shown in Fig. 1–1.

Step No.	Adjustment Title	FM SG (1kHz, ±75kHz dev.)		Reception Frequency Display	Adjustment Location	Specifications
		Frequency (MHz)	Level (dBμV)			
1	Center Adjustment	98	60	98.0 MHz	L151	Adjust so that the DC voltage of R151's both ends becomes 0V±50mV. R151 V = 0±50mV DC VOLTMETER
2	Front-end Sensitivity Check	98	Less than 14	98.0 MHz	——	Less than 14 dBμV.
3	Stereo Separation Check	89	60	89.0 MHz	——	Less than 23 dB. In case out of standard, cut the R157.
4	TUNED IND. Lighting Level	98	18 (±3 dB)	98.0 MHz	VR151	18 dBμV±3 dB. Adjust so that the indicator of TUNED IND. starts to light up.

Note:

- *Make indicator adjustments in order of AM → FM.*

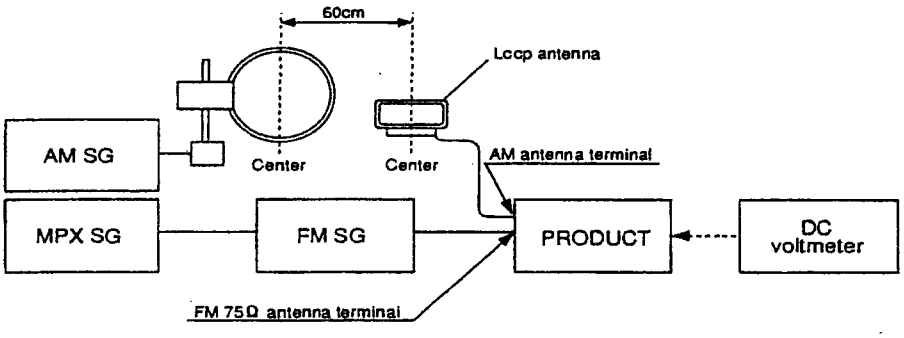


Fig. 1–1. AM and FM Adjustmant Wiring Diagram

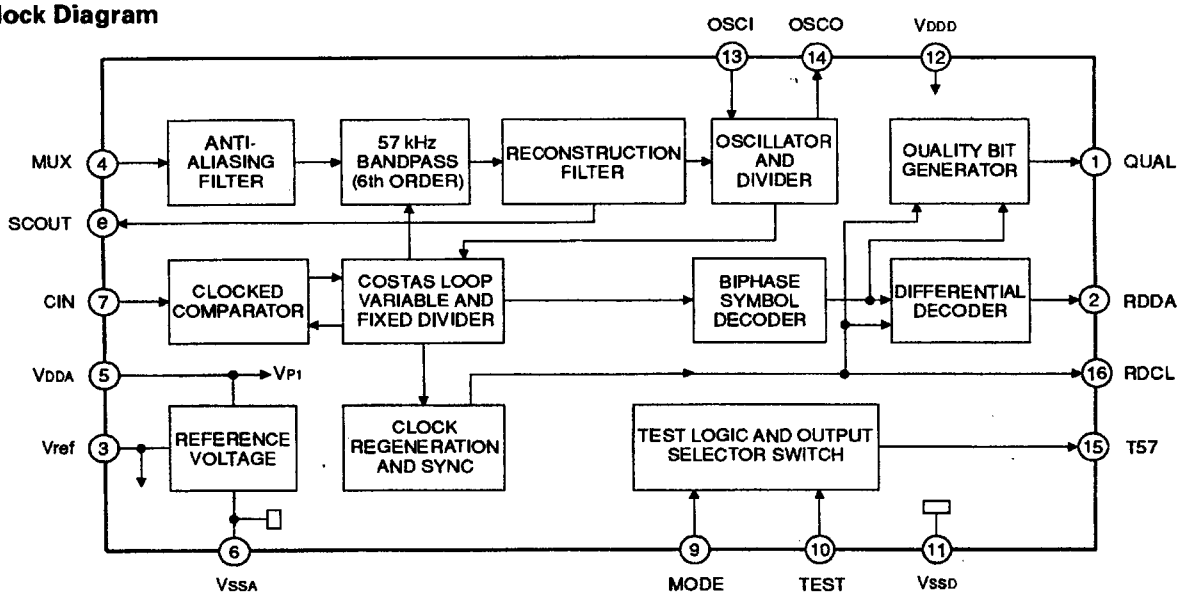
5. IC INFORMATION

• The information shown in the list is basic information and may not correspond exactly to that shown in tbe schematic diagrams.

■ SAA6579 (FRONT ASSY: IC801)
Rodio data system demodulator (RDS), CMOS IC

The SAA6579 is a demodulator circuit for RDS applications. It contains a 57 kHz bandpass filter and a digital demodulator to regenerate the RDS data stream out of the multiplex signal (MPX).

● Block Diagram



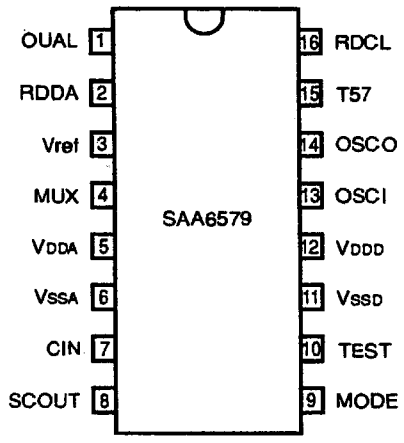
Via the pin MODE two different crystal frequencies can be used

MODE	x-tal clock
LOW	4.332 MHz
HIGH	8.664 MHz

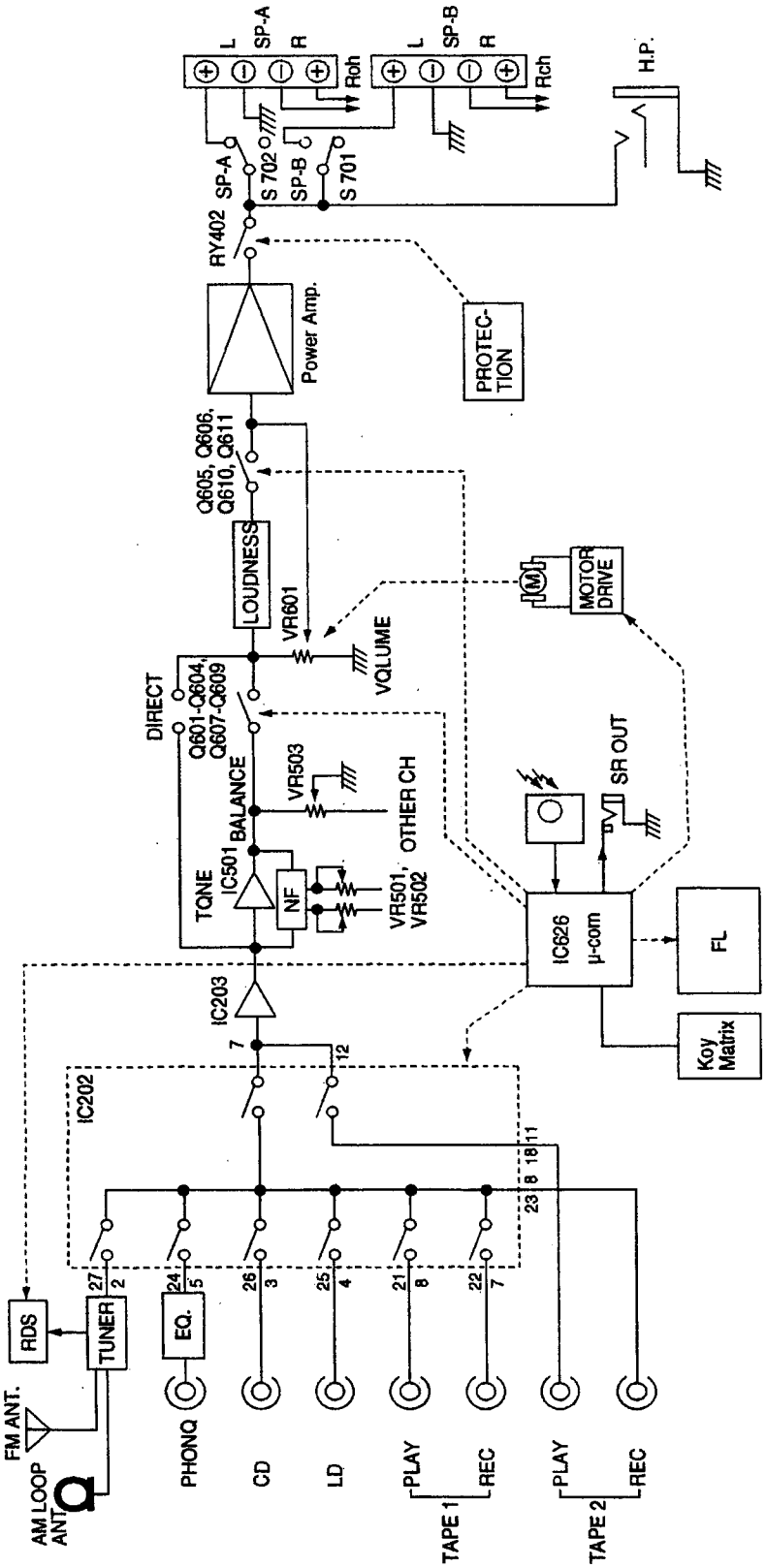
● Pin Function

Pin No.	Pin Nama.	I/O	Pin Function
1	QUAL	O	Quality Indication output
2	RDDA	O	RDS data output
3	Vref	–	Reference voltage output (0.5 VDDA)
4	MUX	I	Multiplex signal Input
5	VDDA	–	+5 V supply voltage for analog part
6	VSSA	–	Ground for analog part (0 V)
7	CIN	I	Subcarrier input to comparator
6	SCOUT	O	Subcarrier output of reconstruction filter
9	MODE	–	Oscillator mode/test control input
10	TEST	I	Test enable input
11	VSSD	–	Ground for digital part (0 V)
12	VDDD	–	+5 V supply voltage for digital part
13	OSCI	I	Oscillator input
14	OSCO	O	Oscillator output
15	T57	O	57 kHz clock signal output
16	RDCL	O	RDS clock output

● Pin Arrangement (Top View)



7. BLOCK DIAGRAM



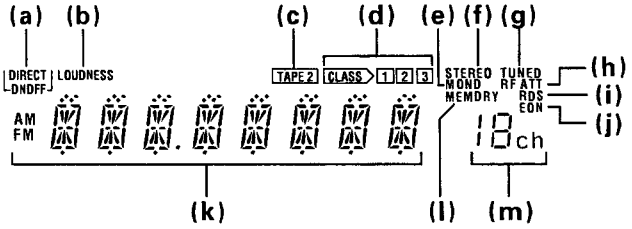
FRONT PANEL FACILITIES (cont)

⑪ EON (Enhanced Other Network information) MODE button/indicator

See page 15.

⑫ Remote sensor

⑬ OPERATION DISPLAY panel



(a) DIRECT ON/OFF indicator
(b) LOUDNESS indicator
(c) TAPE 2 monitor indicator.
(d) CLASS indicator
(e) MONO indicator
(f) Lights up when a stereo FM broadcast is being received.
(g) Lights up when a station is tuned.
(h) RF ATT indicator
(i) Lights when an RDS broadcast is received.
(j) Lights when a station broadcasting EON information is received.
(k) Frequency, function, character display
(l) MEMORY indicator
(m) Channel display

⑭ CLASS button

Use to switch between preset memory classes 1 to 3. In each class, one station can be memorized in each of the 1 to 10 STATION CALL buttons, enabling a total of 30 stations to be memorized.

⑮ FM/AM selector button

This button is used to select either AM or FM reception.

⑯ TUNING buttons (–, +)

Use for tuning frequencies. Press the buttons to change the frequency display (3-speed Accel Tuning) (See page 9).
In the Manual Name input mode and PTY search mode, use to select characters and program types.

⑰ STATION buttons (–, +)

+: Stations change in order in the upward direction.
–: Stations change in order in the downward direction.

⑱ BASS tone control

Use to adjust low-frequency tones. The center position is the flat (normal) position. When turned to the right, low-frequency tones are emphasized.

NOTE:

This control can not be used when the DIRECT function is ON. The DIRECT function can be turned ON/OFF using the remote control unit.

⑲ TREBLE tone control

Use to adjust high-frequency tones. The center position is the flat (normal) position. When turned to the right, high-frequency tones are emphasized.

NOTE:

This control can not be used when the DIRECT function is ON. The DIRECT function can be turned ON/OFF using the remote control unit.

⑳ BALANCE control

Should normally be left in the center position. Adjust balance if the sound is louder from one of the speakers. If the right side is louder, turn toward the L position and if the left side is louder, turn toward the R position.

NOTE:

This control can not be used when the DIRECT function is ON. The DIRECT function can be turned ON/OFF using the remote control unit.